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PATENT SPECIFICATION

29. März 1928

275.964



Convention Date (Germany): Aug. 14, 1926.

Application Date (In United Kingdom): July 27, 1927. No. 19,982 / 27.

Complete Accepted: March 8, 1928.

COMPLETE SPECIFICATION.

Process for Re-modelling Tubes.

We, JOSEF MEISER, of 9, Molteke Street, and WILHELM KÖHLER, of 58, Kessel Street, both in Dortmund, Germany, both German citizens, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

It has been proposed to re-model tubes in such way that said tubes may be provided with connecting members, for example, groove and tongue so that they can be united together into a wall by interlocking the connecting members.

According to the present invention the manufacture of such tubes, and more particularly thick iron tubes, can be carried out expeditiously and economically by rolling or drawing operations or by a combination of both, and in some cases by employing a correspondingly shaped mandrel. The accompanying drawings show by way of example the re-modelling of a tube by means of the said processes according to the invention.

Fig. 1 is a side elevation of a pair of rolls for producing a preliminary flattening of a round tube.

Fig. 2 is a similar view showing an intermediate stage.

Fig. 3 is a similar view of the finishing rolls with the tube in its final shape.

Fig. 4 is a diagrammatic perspective of dies in two parts for the drawing operation.

Figs. 5, 6, 7 and 8 are sections on the planes A B C D; E F G H; J K L M; N O P Q respectively of Fig. 4 showing the progressive change in the outline of the dies.

Fig. 9 shows a combination of a die with rolls, shown dotted behind the die.

In the rolling process, which is shown by way of example in Figs. 1 to 3, the tube *a* of ordinary circular cross section as shown dotted in Fig. 1 is acted upon by two grooved rolls pressing together to some extent at the diameter *b* and completely flattening it on the two sides *c* and *d* (Fig. 1). This preliminary stage is followed by a second pass through other rolls (Fig. 2) in which the tube is intro-

stage it takes the form of a groove. At the other side *d* the tube is contracted in order to form the tongue. In the third stage the groove *c* is bent round at *e* and *f* so that a complete groove is formed. In a like manner connecting members can be formed on three or more sides of the tube, by means of which it is possible to construct corners and cross-members, for example.

The drawing operation is carried out by drawing the tube through several dies located one behind the other and comprises the preliminary and intermediate stages up to the final stage. In this case, a plurality of dies of differing shape can be located immediately behind each other or a die may be machined out of a single piece having successive portions of the different shapes required to effect the progressive re-modelling of the tube from a round shape to that of the finished product.

In the case of a plurality of dies, Fig. 4, which can be made in halves so as to permit of re-adjustment to take up wear, the first may have an opening, the cross-section of which at the entrance is represented by Fig. 5, the cross-section of the die at the outlet having the form shown by Fig. 6. The second die would have at the entrance this last mentioned cross-section Fig. 6 and at the outlet a cross-section as shown by Fig. 7. The third die would similarly have at the entrance a section as in Fig. 7, and at the outlet one as in Fig. 8.

Instead of three dies, a single die may be machined out of the solid as a composite die, the opening in which changes successively and gradually from one section to another as shown in Figs. 5 to 8.

The combination of the rolling and drawing operations, Fig. 9, is carried out in such way that the tube to be re-modelled is first drawn through dies until it has the section J K L M of Fig. 7. It is then introduced into a roll-box the front R S T U of which is shaped as a die with an opening having the outline of Fig. 7; from the die portion the tube passes to the rolls, which are located at different levels to correspond with the progressive

re-modelling of the tube. In the rolls the hollow V in the tube is first acted upon by a horizontal roll W whereby it is brought to the desired depth and width; 5 the projection X on the opposite side of the tube being supported by a roll Y, and the oppositely directed action of the two rolls W and Y resulting in the bending inwards of the wall of the tube. Finally, 10 the tube passes between a pair of rolls Z, which bend over the projecting parts on either side of the hollow V to produce the form of socket shown in Fig. 8, or Fig. 3.

The choice of which method it is preferable to use in individual cases, depends upon the thickness of wall and circumference of the tube, but in general the combined method will be preferable.

Having now particularly described and

ascertained the nature of our said invention and in what manner the same is to be performed, we declare that what we claim is:—

Process of manufacturing tubular wall elements for iron walls, characterized by that iron tubes are re-modelled by rolling or drawing operations or by a combination of both processes and are provided on two or more sides with connection members, for example, groove and tongue, so that said tubes can be continuously interlocked one within the other.

Dated the 26th day of July, 1927.

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Fig.1.

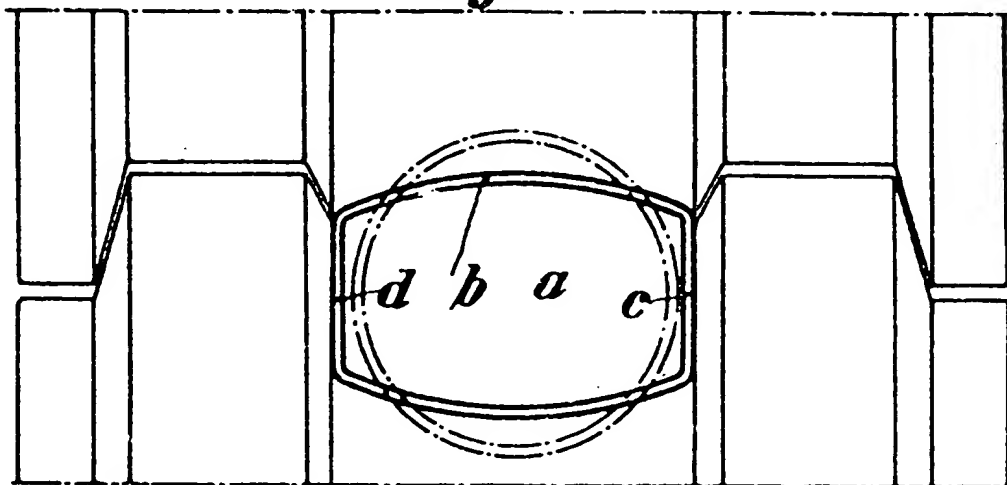


Fig.2.

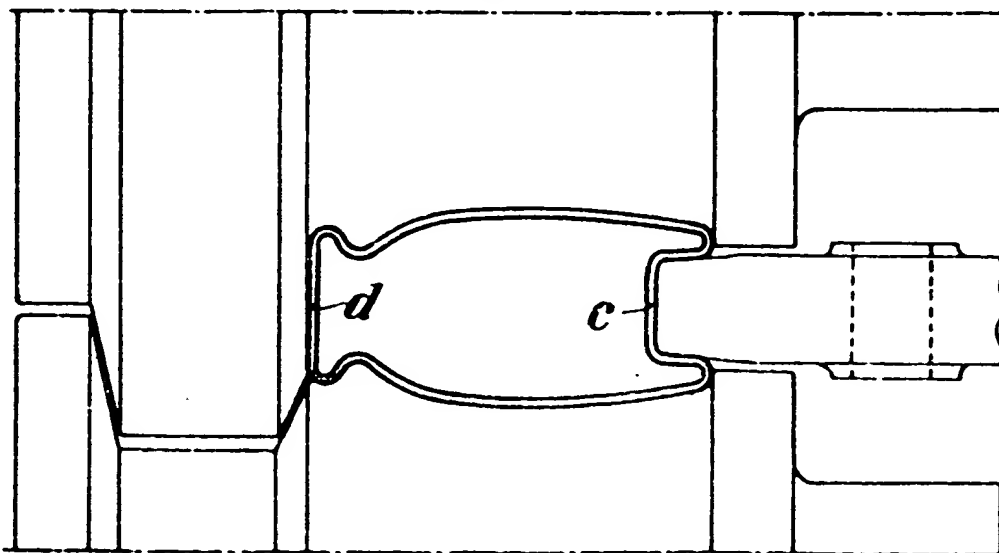
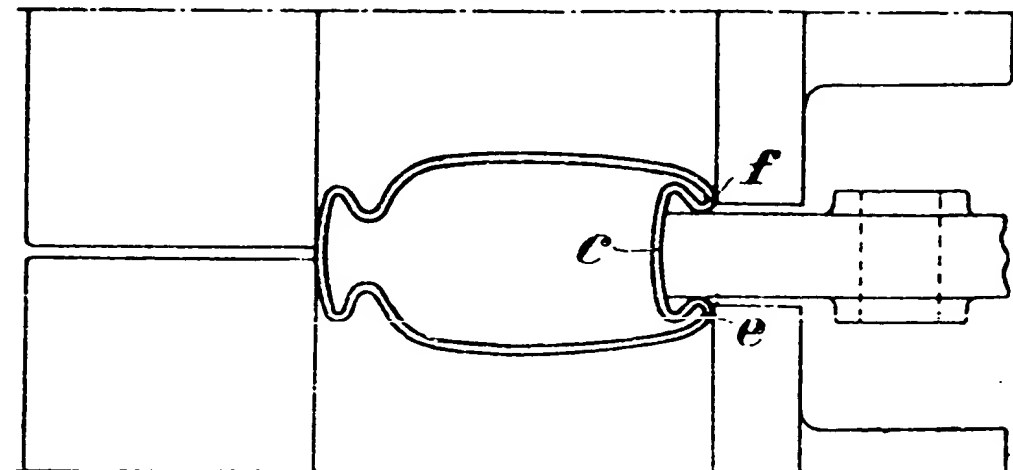


Fig.3.



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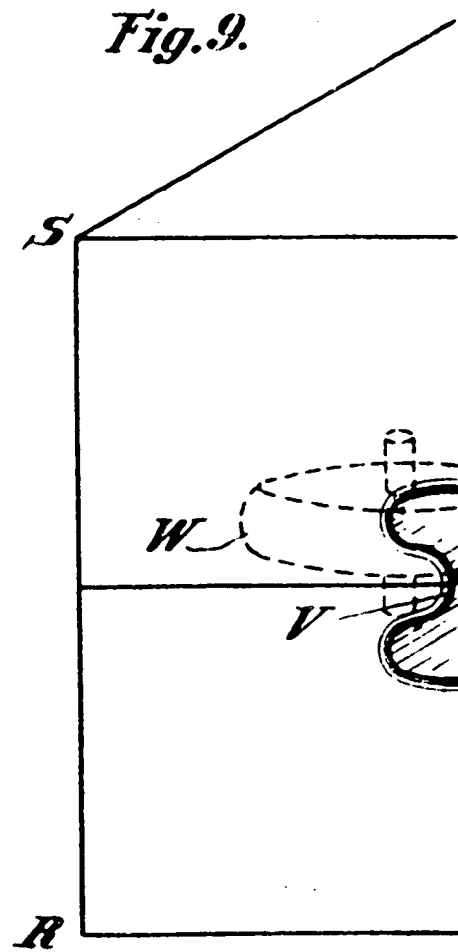
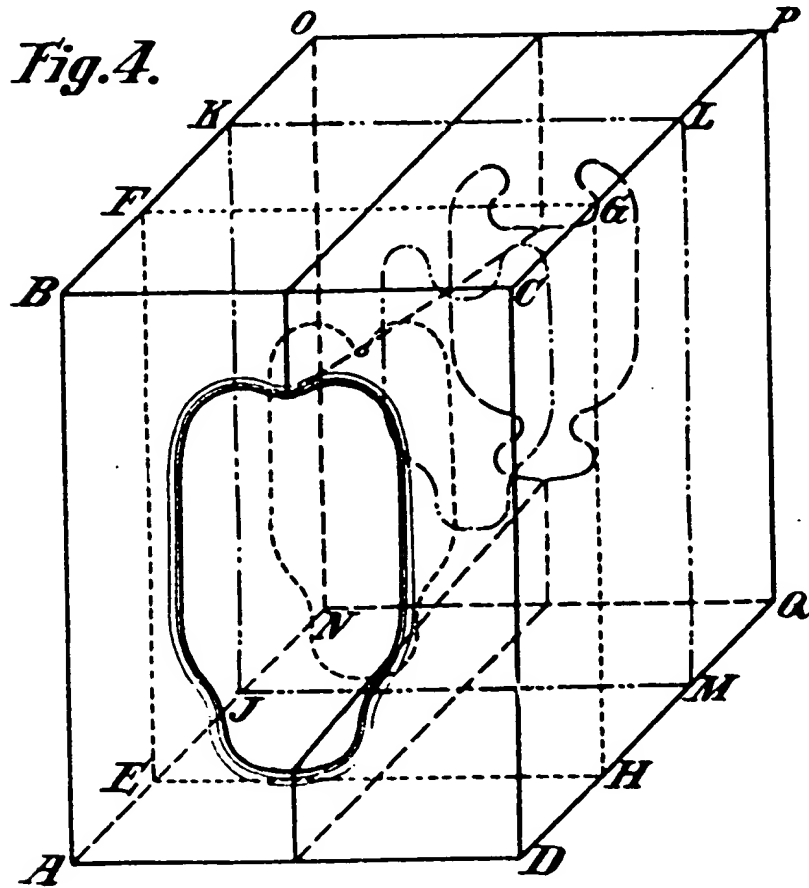


Fig.5.
ABCD

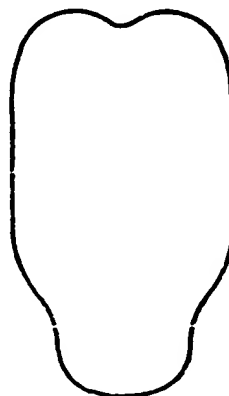


Fig.6.
EF&H

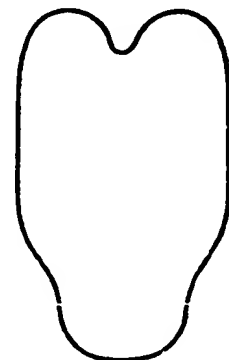


Fig.7.
JKLM



Fig.9.

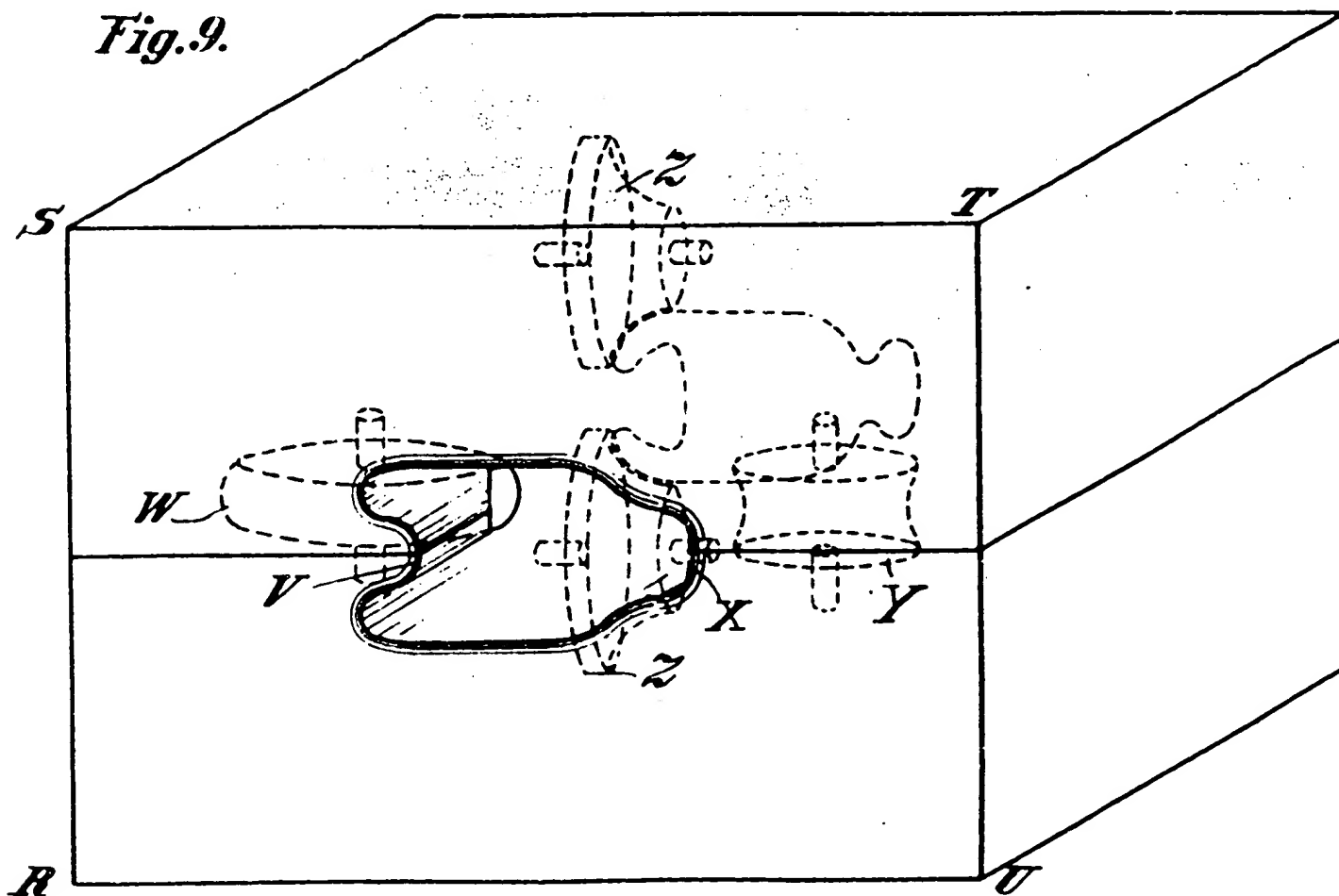


Fig.6.
EF&H

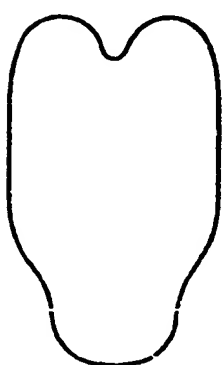


Fig.7.
JHLM

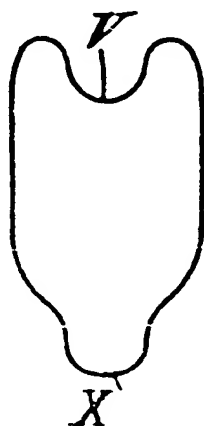


Fig.8.
NOPQ

